RADIO TEST REPORT

Report No.:STS2111139W03

Issued for

CHEP

2901 Tasman Drive Suite 107 Santa Clara, CA 95054

Product Name:	Pallet Tracker
Brand Name:	CHEP
Model Name:	Gen 3 Ultra Wide
Series Model:	N/A
FCC ID:	2APRD-ULTRASHORT
Test Standard:	47 CFR Part 2, 22H, 24(E), 27

Shenzhen STS Test Services Co., Ltd.
A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,
Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

TEST RESULT CERTIFICATION

Applicant's Name.....:	CHEP
Address .....:	2901 Tasman Drive Suite 107 Santa Clara, CA 95054
Manufacturer's Name.....:	Minewing (Shenzhen) Electronics Integrated Co., Ltd
Address .....:	Floor #2, Building H2, Hongfa-Tech Park, No 32 TonG Tau Road, ShiYan Town, Bao'An District, Shenzhen, China, 518108

Product description

Product Name .....:	Pallet Tracker
Brand Name .....:	CHEP
Model Name.....:	Gen 3 Ultra Wide
Series Model .....:	N/A
Test Standards.....:	47 CFR Part 2, 22H, 24(E), 27
Test Procedure .....:	KDB 971168 D01 v03r01, ANSI C63.26 2015

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
This report shall not be reproduced except in full, without the written approval of STS, this document may be altered or revised by STS, personal only, and shall be noted in the revision of the document.

Date of Test.....:	
Date of receipt of test item.....:	22 Nov. 2021
Date (s) of performance of tests .:	22 Nov. 2021 ~ 07 Dec. 2021
Date of Issue .....:	07 Dec. 2021
Test Result .....:	Pass

Testing Engineer : Chris Chen

(Chris Chen)

Technical Manager : Sean She

(Sean she)

Authorized Signatory : Vita Li

(Vita Li)

Table of Contents Page

1. TEST FACTORY & MEASUREMENT UNCERTAINTY 5

2. GENERAL INFORMATION 6

3. RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER 13

4. RADIATED SPURIOUS EMISSION 20

APPENDIX-PHOTOS OF TEST SETUP 42

Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	07 Dec. 2021	STS2111139W03	ALL	Initial Issue

1. TEST FACTORY & MEASUREMENT UNCERTAINTY

1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD
Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
FCC test Firm Registration Number: 625569
IC test Firm Registration Number: 12108A
A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 9K-30MHz	±2.84dB
4	All emissions, radiated 30M-1GHz	±4.39dB
5	All emissions, radiated 1G-6GHz	±5.10dB
6	All emissions, radiated>6G	±5.48dB
7	Conducted Emission (9KHz-150KHz)	±2.79dB
8	Conducted Emission (150KHz-30MHz)	±2.80dB

2. GENERAL INFORMATION

2.1 TECHNICAL SPECIFICATIONS AND REGULATIONS

2.1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Name	Pallet Tracker
Trade Name	CHEP
Model Name	Gen 3 Ultra Wide
Series Model	N/A
Model Difference	N/A
Frequency Bands	U.S. Bands: NB-IoT FDD Band 2 NB-IoT FDD Band 4 NB-IoT FDD Band 5 NB-IoT FDD Band 12 NB-IoT FDD Band 13
SIM Card	Only support Single SIM Card.
Antenna	PIFA
Antenna gain	Band2:3.50dBi, Band4:3.50dBi, Band5:1.60dBi, Band12:0.40dBi, Band13:0.40dBi
Battery	Rated Voltage: Rated Voltage:3V
Extreme Vol. Limits	2.7V to 3.3V (Nominal 3V)
Extreme Temp. Tolerance	-30℃ to +50℃
Hardware version number	48JKB101.SGB
Software version number	v01.02.0015

2.1.2 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Product Specification Subjective To This Standard	
Tx Frequency	NB-IoT Band 2:1850.1~1909.9MHz NB-IoT Band 4:1710.1~1754.9MHz NB-IoT Band 5:824.1~848.9MHz NB-IoT Band 12:699.1~715.9MHz NB-IoT Band 13:777.1~786.9MHz
Rx Frequency	NB-IoT Band 2:1930.1 ~1989.9MHz NB-IoT Band 4:2110.1~2154.9MHz NB-IoT Band 5:869.1~893.9MHz NB-IoT Band 12:729.1~745.9MHz NB-IoT Band 13:746.1~755.9MHz
Deployment	Stand-alone
Ntones	Single, multi-tone
Sub-carrier spacing	3.75KHz, 15KHz
Type of Modulation	BPSK /QPSK

RF Function	Band	UE Category UL	Modulation	Power Class	Ant Gain(dBi)	Ant Type	SIM Card
NB-IoT	FDD:2/4/5/12/13	NB1	BPSK, QPSK	3	Band2:3.50dBi Band4:3.50dBi Band5:1.60dBi Band12:0.40dBi Band13:0.40dBi	PIFA	1 SIM 1 is used to tested.

2.1.3 TEST CONFIGURATION OF EQUIPMENT UNDER TEST

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 v03r01 and ANSI C63.26 2015 Power Meas. License Digital Systems with maximum output power. Radiated measurements are performed by rotating the EUT in three different orthogonal test planes tofind the maximum emission.

Remark:

1. The mark ‘v’means that this configuration is chosen for testing
2. The mark ‘-’means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated

ITEMS	Band	Subcarrier Spacing (KHz)		Modulation		Test Channel		
		3.75	15	BPSK	QPSK	L	M	H
E.R.P.& E.I.R.P.	2	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v
	5	v	v	v	v	v	v	v
	12	v	v	v	v	v	v	v
	13	v	v	v	v	v	v	v
Radiated Spurious Emission	2	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v
	5	v	v	v	v	v	v	v
	12	v	v	v	v	v	v	v
	13	v	v	v	v	v	v	v

2.1.4 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for filing to comply with the 47 CFR Part 2, 22H, 24(E), 27.

2.1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

2.1.6 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission’s requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.1.7 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.1.8 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

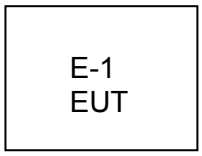


Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	Length	Note
N/A	N/A	N/A	N/A	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.1.9 MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ANSI C63.26 2015 and FCC CFR 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2021.09.30	2022.09.29
Signal Analyzer	R&S	FSV 40-N	101823	2021.09.30	2022.09.29
Signal Generator	Agilent	83752A	3610A02740	2021.09.30	2022.09.29
Wireless Communications Test Set	R&S	CMW 500	133884	2021.03.04	2022.03.03
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2021.10.11	2023.10.10
Bilog Antenna	TESEQ	CBL6111D	45873	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1343	2020.10.12	2022.10.11
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier (0.1M-3GHz)	EM	EM330	060665	2021.10.08	2022.10.07
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2021.09.30	2022.09.29
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2021.09.28	2022.09.27
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Temperature & Humidity	HH660	Mieo	N/A	2021.10.09	2022.10.08
Test SW	BALUN	BL410-E/18.905			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Universal Radio communication tester	R&S	CMU200	111058	2021.09.29	2022.09.28
Wireless Communications Test Set	R&S	CMW 500	133884	2021.03.04	2022.03.03
Signal Analyzer	Agilent	N9020A	MY52440124	2021.03.04	2022.03.03
Temperature& Humidity test chamber	Safety test	AG80L	171200018	2021.03.04	2022.03.03
Programmable power supply	Agilent	E3642A	MY40002025	2021.10.08	2022.10.07
Temperature & Humidity	SW-108	SuWei	N/A	2021.03.04	2022.03.03
Test SW	FARAD	LZ-RF /LzRf-3A3			

2.1.10 MEASUREMENT RESULTS EXPLANATION EXAMPLE

For all conducted test items:
The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factorbetween EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF Cable Loss + Attenuator Factor.

3. RADIATED POWER AND EFFECTIVE ISOTROPIC RADIATED POWER

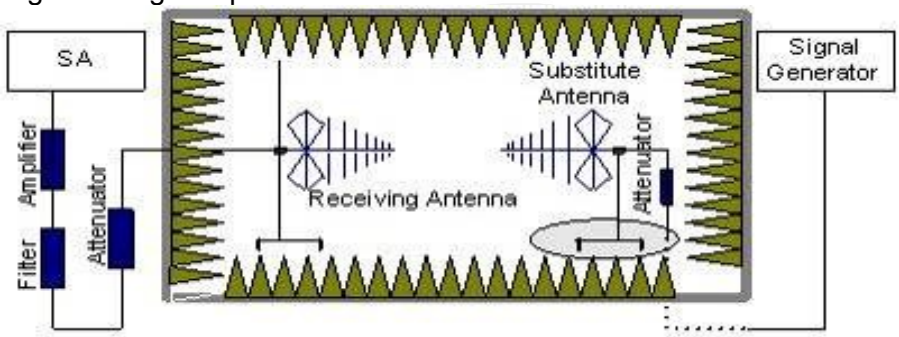
3.1 DESCRIPTION OF THE ERP/EIRP MEASUREMENT

3.1.1 MEASUREMENT METHOD

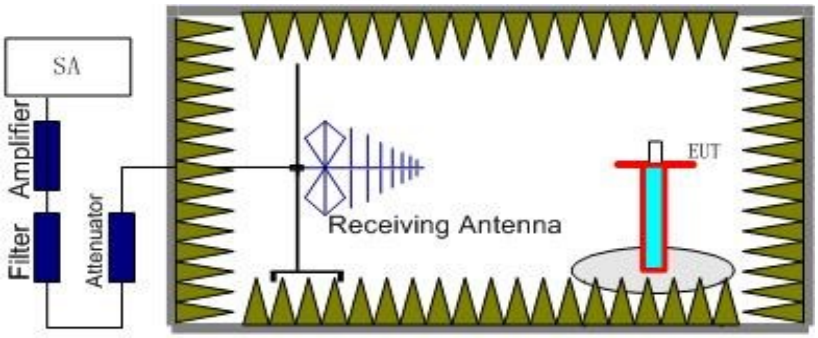
Effective radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas.
License Digital Systems. Mobile and portable (hand-held) stations operating are limited to average ERP, Equivalent isotropic radiated power output measurements by substitution method according to ANSI C63.26 2015, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas, Mobile and portable (hand-held) stations operating are limited to average EIRP.

3.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（dBuV to dBm）The SA is calibrated using following setup.



b) EUT was placed on a 1.5m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:
Power=PMea+ARpl

3.1.3 TEST PROCEDURES

1. The testing follows FCC KDB 971168 D01v03r01 Section 5.6 and ANSI C63.26 2015 Section 5.2.

2. The EUT was placed on a non-conductive rotating platform 1.5 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with Peak detector.

3. During the measurement, the system simulator parameters were set to force the EUTtransmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 m in both horizontally and vertically polarized orientations.

4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to ANSI C63.26 2015. The EUT was replaced by dipole antenna (substitution antenna) at same location and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. EIRP=S.G Level+ Gain-Cable loss; ERP=S.G Level+ Gain-Cable loss-2.15.

5. RB Set greater than bandwidth, VB Set spectrum analyzer Maximum support.

3.1.4 TEST RESULTS

Note: Test is divided into three directions, X/Y/Z. X pattern for the worst.

Radiated Power (EIRP) for NB-IoT Band 2/Standalone									
Modulation	Subcarrier Space (KHz)	RB Configure	Channel	Result					Conclusion
				S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.I.R.P(dBm)	Polarization Of Max. EIRP	
BPSK	3.75	1@0	Lowest	9.66	2.37	10.40	17.69	Horizontal	Pass
			Middle	10.41	2.39	10.42	18.44	Horizontal	Pass
			Highest	9.5	2.40	10.44	17.54	Horizontal	Pass
		1@0	Lowest	10.68	2.37	10.40	18.71	Vertical	Pass
			Middle	11.24	2.39	10.42	19.27	Vertical	Pass
			Highest	10.94	2.40	10.44	18.98	Vertical	Pass
	15	1@0	Lowest	8.38	2.37	10.40	16.41	Horizontal	Pass
			Middle	9.12	2.39	10.42	17.15	Horizontal	Pass
			Highest	9.58	2.40	10.44	17.62	Horizontal	Pass
		1@0	Lowest	10.13	2.37	10.40	18.16	Vertical	Pass
			Middle	10.46	2.39	10.42	18.49	Vertical	Pass
			Highest	10.51	2.40	10.44	18.55	Vertical	Pass
QPSK	3.75	1@0	Lowest	8.7	2.37	10.40	16.73	Horizontal	Pass
			Middle	8.73	2.39	10.42	16.76	Horizontal	Pass
			Highest	8.51	2.40	10.44	16.55	Horizontal	Pass
		1@0	Lowest	9.57	2.37	10.40	17.60	Vertical	Pass
			Middle	9.99	2.39	10.42	18.02	Vertical	Pass
			Highest	9.93	2.40	10.44	17.97	Vertical	Pass
	15	1@0	Lowest	7.61	2.37	10.40	15.64	Horizontal	Pass
			Middle	8.57	2.39	10.42	16.60	Horizontal	Pass
			Highest	8.52	2.40	10.44	16.56	Horizontal	Pass
		1@0	Lowest	9.14	2.37	10.40	17.17	Vertical	Pass
			Middle	9.55	2.39	10.42	17.58	Vertical	Pass
			Highest	9.81	2.40	10.44	17.85	Vertical	Pass
Limit	EIRP<2W=33dBm								

Radiated Power (EIRP) for NB-IoT Band 4/Standalone									
Modulation	Subcarrier Space (KHz)	RB Configure	Channel	Result					Conclusion
				S G.Level (dBm)	Cable loss	Gain (dBi)	PMeas E.R.P(dBm)	Polarization / Of Max. ERP	
BPSK	3.75	1@0	Lowest	8.86	2.35	10.13	16.64	Horizontal	Pass
			Middle	8.91	2.36	10.16	16.71	Horizontal	Pass
			Highest	9	2.37	10.22	16.85	Horizontal	Pass
		1@0	Lowest	10.46	2.35	10.13	18.24	Vertical	Pass
			Middle	10.56	2.36	10.16	18.36	Vertical	Pass
			Highest	10.99	2.37	10.22	18.84	Vertical	Pass
	15	1@0	Lowest	9.25	2.35	10.13	17.03	Horizontal	Pass
			Middle	8.52	2.36	10.16	16.32	Horizontal	Pass
			Highest	9.07	2.37	10.22	16.92	Horizontal	Pass
		1@0	Lowest	10.43	2.35	10.13	18.21	Vertical	Pass
			Middle	9.9	2.36	10.16	17.70	Vertical	Pass
			Highest	10.14	2.37	10.22	17.99	Vertical	Pass
QPSK	3.75	1@0	Lowest	8.12	2.35	10.13	15.90	Horizontal	Pass
			Middle	8.8	2.36	10.16	16.60	Horizontal	Pass
			Highest	8.37	2.37	10.22	16.22	Horizontal	Pass
		1@0	Lowest	10.02	2.35	10.13	17.80	Vertical	Pass
			Middle	10.18	2.36	10.16	17.98	Vertical	Pass
			Highest	9.74	2.37	10.22	17.59	Vertical	Pass
	15	1@0	Lowest	7.38	2.35	10.13	15.16	Horizontal	Pass
			Middle	8.07	2.36	10.16	15.87	Horizontal	Pass
			Highest	7.63	2.37	10.22	15.48	Horizontal	Pass
		1@0	Lowest	9	2.35	10.13	16.78	Vertical	Pass
			Middle	8.93	2.36	10.16	16.73	Vertical	Pass
			Highest	8.84	2.37	10.22	16.69	Vertical	Pass
Limit	EIRP<1W=30dBm								

Radiated Power (ERP) for NB-IoT Band 5/Standalone										
Modulation	Subcarrier Space (KHz)	RB Configure	Channel	Result						Conclusion
				S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P(dBm)	Polarization Of Max. ERP	
BPSK	3.75	1@0	Lowest	14.71	1.27	6.70	2.15	17.99	Horizontal	Pass
			Middle	14.7	1.28	6.70	2.15	17.97	Horizontal	Pass
			Highest	14.82	1.29	6.70	2.15	18.08	Horizontal	Pass
		1@0	Lowest	16.26	1.27	6.70	2.15	19.54	Vertical	Pass
			Middle	16.6	1.28	6.70	2.15	19.87	Vertical	Pass
			Highest	16.65	1.29	6.70	2.15	19.91	Vertical	Pass
	15	1@0	Lowest	14.16	1.27	6.70	2.15	17.44	Horizontal	Pass
			Middle	14.66	1.28	6.70	2.15	17.93	Horizontal	Pass
			Highest	13.96	1.29	6.70	2.15	17.22	Horizontal	Pass
		1@0	Lowest	15.43	1.27	6.70	2.15	18.71	Vertical	Pass
			Middle	15.5	1.28	6.70	2.15	18.77	Vertical	Pass
			Highest	15.84	1.29	6.70	2.15	19.10	Vertical	Pass
QPSK	3.75	1@0	Lowest	14.18	1.27	6.70	2.15	17.46	Horizontal	Pass
			Middle	14.25	1.28	6.70	2.15	17.52	Horizontal	Pass
			Highest	13.77	1.29	6.70	2.15	17.03	Horizontal	Pass
		1@0	Lowest	15.27	1.27	6.70	2.15	18.55	Vertical	Pass
			Middle	15.21	1.28	6.70	2.15	18.48	Vertical	Pass
			Highest	15.42	1.29	6.70	2.15	18.68	Vertical	Pass
	15	1@0	Lowest	13.77	1.27	6.70	2.15	17.05	Horizontal	Pass
			Middle	13.52	1.28	6.70	2.15	16.79	Horizontal	Pass
			Highest	13.45	1.29	6.70	2.15	16.71	Horizontal	Pass
		1@0	Lowest	14.77	1.27	6.70	2.15	18.05	Vertical	Pass
			Middle	14.88	1.28	6.70	2.15	18.15	Vertical	Pass
			Highest	14.77	1.29	6.70	2.15	18.03	Vertical	Pass
Limit	ERP<7W=38.45dBm									

Radiated Power (ERP) for NB-IoT Band 12/Standalone										
Modulation	Subcarrier Space (KHz)	RB Configure	Channel	Result						Conclusion
				S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P(dBm)	Polarization Of Max. ERP	
BPSK	3.75	1@0	Lowest	15.62	1.21	6.40	2.15	18.66	Horizontal	Pass
			Middle	15.3	1.22	6.40	2.15	18.33	Horizontal	Pass
			Highest	15.56	1.23	6.40	2.15	18.58	Horizontal	Pass
		1@0	Lowest	16.51	1.21	6.40	2.15	19.55	Vertical	Pass
			Middle	16.42	1.22	6.40	2.15	19.45	Vertical	Pass
			Highest	16.59	1.23	6.40	2.15	19.61	Vertical	Pass
	15	1@0	Lowest	14.32	1.21	6.40	2.15	17.36	Horizontal	Pass
			Middle	14.34	1.22	6.40	2.15	17.37	Horizontal	Pass
			Highest	15.09	1.23	6.40	2.15	18.11	Horizontal	Pass
		1@0	Lowest	15.7	1.21	6.40	2.15	18.74	Vertical	Pass
			Middle	16.37	1.22	6.40	2.15	19.40	Vertical	Pass
			Highest	16.65	1.23	6.40	2.15	19.67	Vertical	Pass
QPSK	3.75	1@0	Lowest	14.56	1.21	6.40	2.15	17.60	Horizontal	Pass
			Middle	14.76	1.22	6.40	2.15	17.79	Horizontal	Pass
			Highest	13.99	1.23	6.40	2.15	17.01	Horizontal	Pass
		1@0	Lowest	15.2	1.21	6.40	2.15	18.24	Vertical	Pass
			Middle	15.25	1.22	6.40	2.15	18.28	Vertical	Pass
			Highest	15.43	1.23	6.40	2.15	18.45	Vertical	Pass
	15	1@0	Lowest	13.65	1.21	6.40	2.15	16.69	Horizontal	Pass
			Middle	13.79	1.22	6.40	2.15	16.82	Horizontal	Pass
			Highest	14.08	1.23	6.40	2.15	17.10	Horizontal	Pass
		1@0	Lowest	14.95	1.21	6.40	2.15	17.99	Vertical	Pass
			Middle	14.98	1.22	6.40	2.15	18.01	Vertical	Pass
			Highest	15.09	1.23	6.40	2.15	18.11	Vertical	Pass
Limit	ERP<3W=34.77dBm									

Radiated Power (ERP) for NB-IoT Band 13/Standalone										
Modulation	Subcarrier Space (KHz)	RB Configure	Channel	Result						Conclusion
				S G.Level (dBm)	Cable loss	Gain (dBi)	correction factor(dB)	PMeas E.R.P(dBm)	Polarization Of Max. ERP	
BPSK	3.75	1@0	Lowest	14.41	1.25	6.60	2.15	17.61	Horizontal	Pass
			Middle	14	1.25	6.60	2.15	17.20	Horizontal	Pass
			Highest	13.99	1.25	6.60	2.15	17.19	Horizontal	Pass
		1@0	Lowest	15.83	1.25	6.60	2.15	19.03	Vertical	Pass
			Middle	15.43	1.25	6.60	2.15	18.63	Vertical	Pass
			Highest	15.82	1.25	6.60	2.15	19.02	Vertical	Pass
	15	1@0	Lowest	13.48	1.25	6.60	2.15	16.68	Horizontal	Pass
			Middle	13.83	1.25	6.60	2.15	17.03	Horizontal	Pass
			Highest	13.35	1.25	6.60	2.15	16.55	Horizontal	Pass
		1@0	Lowest	15.39	1.25	6.60	2.15	18.59	Vertical	Pass
			Middle	14.92	1.25	6.60	2.15	18.12	Vertical	Pass
			Highest	15.2	1.25	6.60	2.15	18.40	Vertical	Pass
QPSK	3.75	1@0	Lowest	12.79	1.25	6.60	2.15	15.99	Horizontal	Pass
			Middle	13.18	1.25	6.60	2.15	16.38	Horizontal	Pass
			Highest	13.84	1.25	6.60	2.15	17.04	Horizontal	Pass
		1@0	Lowest	14.39	1.25	6.60	2.15	17.59	Vertical	Pass
			Middle	14.23	1.25	6.60	2.15	17.43	Vertical	Pass
			Highest	14.93	1.25	6.60	2.15	18.13	Vertical	Pass
	15	1@0	Lowest	12.49	1.25	6.60	2.15	15.69	Horizontal	Pass
			Middle	13.04	1.25	6.60	2.15	16.24	Horizontal	Pass
			Highest	13.04	1.25	6.60	2.15	16.24	Horizontal	Pass
		1@0	Lowest	14.07	1.25	6.60	2.15	17.27	Vertical	Pass
			Middle	14.34	1.25	6.60	2.15	17.54	Vertical	Pass
			Highest	13.95	1.25	6.60	2.15	17.15	Vertical	Pass
Limit	ERP<3W=34.77dBm									

4. RADIATED SPURIOUS EMISSION

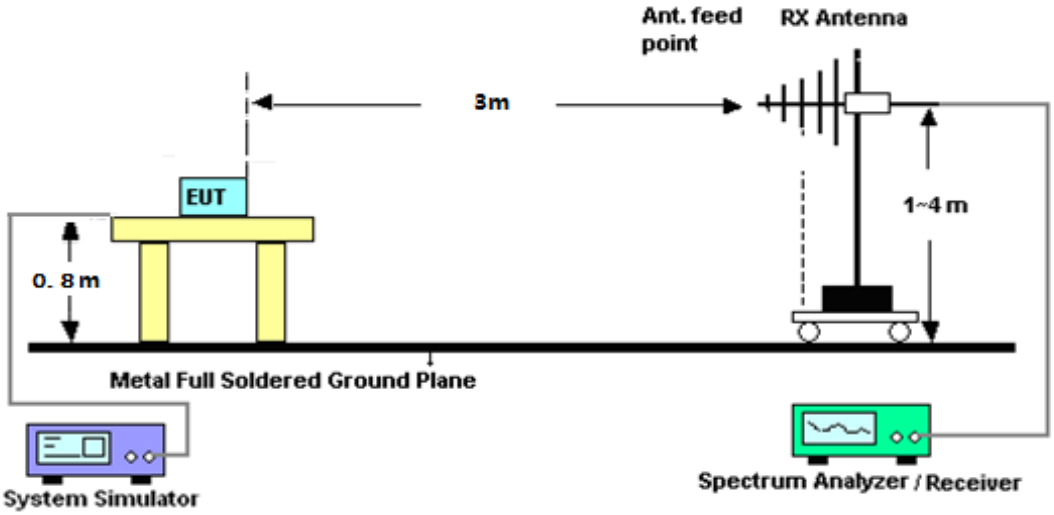
4.1 DESCRIPTION OF RADIATED SPURIOUS EMISSION

4.1.1 MEASUREMENT METHOD

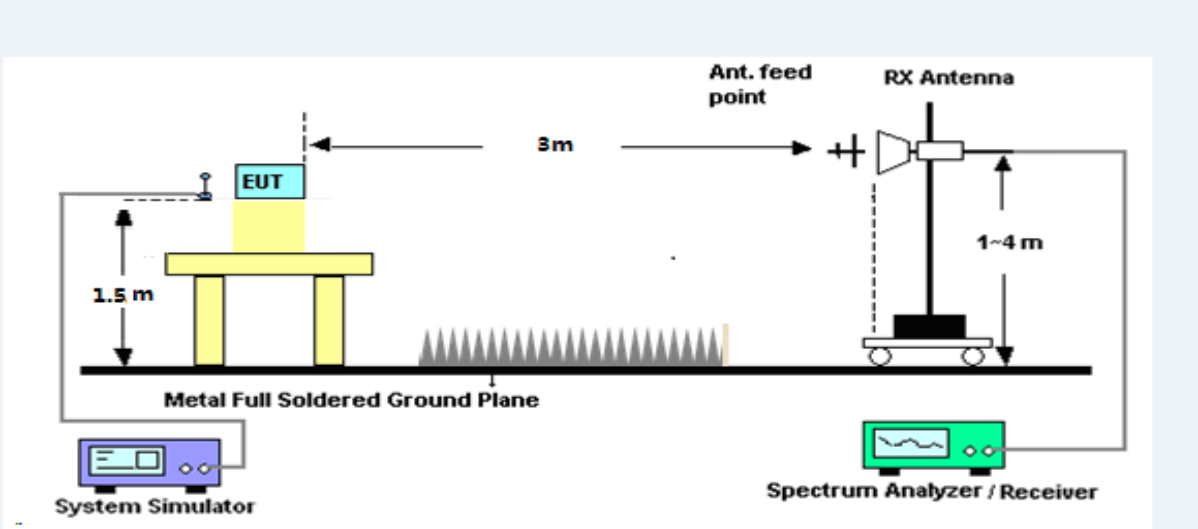
The radiated spurious emission was measured by substitution method according to ANSI C63.26 2015. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.
For Band 7 The power of any emission outside of the authorized operating frequency ranges must attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.1.2 TEST SETUP

The procedure of radiated spurious emissions is as follows:
a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（dBuV to dBm）The SA is calibrated using following setup.
b) EUT was placed on 1.5 m non-conductive stand at a 3 m test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 m from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic measured with peak detector and 1MHz bandwidth.
Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.
The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below:
Power=PMea+ARpl
For radiated test from 30MHz to 1GHz



For radiated test from above 1GHz



4.1.3 TEST PROCEDURES

1. The testing FCC KDB 971168 D01 Section 7 and ANSI C63.26 2015 Section 5.5.

2. The EUT was placed on a rotatable wooden table with 1.5 meter above ground.

3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.

4. The table was rotated 360 degrees to determine the position of the highest spurious emission.

5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations

6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.

7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.

8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.

9. Taking the record of output power at antenna port.

10. Repeat step 7 to step 8 for another polarization.

11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
= P(W)- [43 + 10log(P)] (dB)
= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
= -13dBm
.
For Band 7:
The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
= [30 + 10log(P)] (dBm) - [55 + 10log(P)] (dB)
= -25dBm
PMea=S.G Level+ Ant-Cable loss; Margin=PMea-Limit.

4.1.4 TEST RESULTS

NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3700.14	-33.91	12.60	12.93	-34.24	-13.00	-21.24	H
5550.19	-34.73	13.10	17.11	-38.74	-13.00	-25.74	H
7400.50	-32.42	11.50	22.20	-43.12	-13.00	-30.12	H
3700.14	-35.47	12.60	12.93	-35.80	-13.00	-22.80	V
5550.19	-34.89	13.10	17.11	-38.90	-13.00	-25.90	V
7400.50	-32.47	11.50	22.20	-43.17	-13.00	-30.17	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3759.76	-34.07	12.60	12.93	-34.40	-13.00	-21.40	H
5640.29	-34.21	13.10	17.11	-38.22	-13.00	-25.22	H
7520.21	-33.35	11.50	22.20	-44.05	-13.00	-31.05	H
3759.76	-35.09	12.60	12.93	-35.42	-13.00	-22.42	V
5640.29	-34.08	13.10	17.11	-38.09	-13.00	-25.09	V
7520.21	-32.44	11.50	22.20	-43.14	-13.00	-30.14	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3819.64	-34.31	12.60	12.93	-34.64	-13.00	-21.64	H
5729.56	-34.28	13.10	17.11	-38.29	-13.00	-25.29	H
7639.69	-32.72	11.50	22.20	-43.42	-13.00	-30.42	H
3819.64	-35.11	12.60	12.93	-35.44	-13.00	-22.44	V
5729.56	-34.27	13.10	17.11	-38.28	-13.00	-25.28	V
7639.69	-33.03	11.50	22.20	-43.73	-13.00	-30.73	V

NB-IoT Band 2 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3700.25	-34.83	12.60	12.93	-35.16	-13.00	-22.16	H
5550.51	-34.34	13.10	17.11	-38.35	-13.00	-25.35	H
7400.54	-33.23	11.50	22.20	-43.93	-13.00	-30.93	H
3700.25	-35.79	12.60	12.93	-36.12	-13.00	-23.12	V
5550.51	-34.88	13.10	17.11	-38.89	-13.00	-25.89	V
7400.54	-33.06	11.50	22.20	-43.76	-13.00	-30.76	V
NB-IoT Band 2 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3760.09	-34.60	12.60	12.93	-34.93	-13.00	-21.93	H
5639.98	-34.73	13.10	17.11	-38.74	-13.00	-25.74	H
7520.40	-33.29	11.50	22.20	-43.99	-13.00	-30.99	H
3760.09	-34.94	12.60	12.93	-35.27	-13.00	-22.27	V
5639.98	-33.79	13.10	17.11	-37.80	-13.00	-24.80	V
7520.40	-32.02	11.50	22.20	-42.72	-13.00	-29.72	V
NB-IoT Band 2 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3819.42	-34.25	12.60	12.93	-34.58	-13.00	-21.58	H
5729.79	-34.98	13.10	17.11	-38.99	-13.00	-25.99	H
7639.71	-32.62	11.50	22.20	-43.32	-13.00	-30.32	H
3819.42	-34.93	12.60	12.93	-35.26	-13.00	-22.26	V
5729.79	-33.83	13.10	17.11	-37.84	-13.00	-24.84	V
7639.71	-32.34	11.50	22.20	-43.04	-13.00	-30.04	V

NB-IoT Band 2 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3700.10	-33.76	12.60	12.93	-34.09	-13.00	-21.09	H
5550.38	-34.86	13.10	17.11	-38.87	-13.00	-25.87	H
7400.65	-33.03	11.50	22.20	-43.73	-13.00	-30.73	H
3700.10	-34.89	12.60	12.93	-35.22	-13.00	-22.22	V
5550.38	-34.85	13.10	17.11	-38.86	-13.00	-25.86	V
7400.65	-31.94	11.50	22.20	-42.64	-13.00	-29.64	V
NB-IoT Band 2 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3759.75	-34.81	12.60	12.93	-35.14	-13.00	-22.14	H
5640.15	-34.27	13.10	17.11	-38.28	-13.00	-25.28	H
7520.37	-32.23	11.50	22.20	-42.93	-13.00	-29.93	H
3759.75	-35.37	12.60	12.93	-35.70	-13.00	-22.70	V
5640.15	-34.23	13.10	17.11	-38.24	-13.00	-25.24	V
7520.37	-32.73	11.50	22.20	-43.43	-13.00	-30.43	V
NB-IoT Band 2 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3819.60	-34.32	12.60	12.93	-34.65	-13.00	-21.65	H
5729.45	-35.02	13.10	17.11	-39.03	-13.00	-26.03	H
7639.32	-32.18	11.50	22.20	-42.88	-13.00	-29.88	H
3819.60	-35.29	12.60	12.93	-35.62	-13.00	-22.62	V
5729.45	-34.84	13.10	17.11	-38.85	-13.00	-25.85	V
7639.32	-32.18	11.50	22.20	-42.88	-13.00	-29.88	V

NB-IoT Band 2 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3700.50	-34.34	12.60	12.93	-34.67	-13.00	-21.67	H
5550.35	-34.25	13.10	17.11	-38.26	-13.00	-25.26	H
7400.33	-32.21	11.50	22.20	-42.91	-13.00	-29.91	H
3700.50	-34.56	12.60	12.93	-34.89	-13.00	-21.89	V
5550.35	-34.77	13.10	17.11	-38.78	-13.00	-25.78	V
7400.33	-32.07	11.50	22.20	-42.77	-13.00	-29.77	V
NB-IoT Band 2 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3760.15	-34.46	12.60	12.93	-34.79	-13.00	-21.79	H
5640.24	-35.13	13.10	17.11	-39.14	-13.00	-26.14	H
7520.38	-32.56	11.50	22.20	-43.26	-13.00	-30.26	H
3760.15	-34.77	12.60	12.93	-35.10	-13.00	-22.10	V
5640.24	-34.51	13.10	17.11	-38.52	-13.00	-25.52	V
7520.38	-32.97	11.50	22.20	-43.67	-13.00	-30.67	V
NB-IoT Band 2 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3819.58	-34.20	12.60	12.93	-34.53	-13.00	-21.53	H
5729.59	-35.24	13.10	17.11	-39.25	-13.00	-26.25	H
7639.64	-33.16	11.50	22.20	-43.86	-13.00	-30.86	H
3819.58	-34.85	12.60	12.93	-35.18	-13.00	-22.18	V
5729.59	-34.95	13.10	17.11	-38.96	-13.00	-25.96	V
7639.64	-32.09	11.50	22.20	-42.79	-13.00	-29.79	V

NB-IoT Band 4 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3419.97	-33.73	12.90	12.56	-33.39	-13.00	-20.39	H
5130.09	-34.22	13.10	16.32	-37.44	-13.00	-24.44	H
6840.45	-33.12	12.33	21.13	-41.92	-13.00	-28.92	H
3419.97	-35.52	12.90	12.56	-35.18	-13.00	-22.18	V
5130.09	-34.18	13.10	16.32	-37.40	-13.00	-24.40	V
6840.45	-33.09	12.33	21.13	-41.89	-13.00	-28.89	V
NB-IoT Band 2 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3495.29	-33.75	12.90	12.56	-33.41	-13.00	-20.41	H
5242.66	-34.68	13.10	16.32	-37.90	-13.00	-24.90	H
6990.01	-33.51	12.33	21.13	-42.31	-13.00	-29.31	H
3495.29	-35.72	12.90	12.56	-35.38	-13.00	-22.38	V
5242.66	-35.08	13.10	16.32	-38.30	-13.00	-25.30	V
6990.01	-31.81	12.33	21.13	-40.61	-13.00	-27.61	V
NB-IoT Band 4 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3510.09	-34.40	12.90	12.56	-34.06	-13.00	-21.06	H
5764.74	-34.08	13.10	16.32	-37.30	-13.00	-24.30	H
7019.86	-32.20	12.33	21.13	-41.00	-13.00	-28.00	H
3510.09	-35.24	12.90	12.56	-34.90	-13.00	-21.90	V
5764.74	-34.27	13.10	16.32	-37.49	-13.00	-24.49	V
7019.86	-32.23	12.33	21.13	-41.03	-13.00	-28.03	V

NB-IoT Band 4 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3420.07	-34.61	12.90	12.56	-34.27	-13.00	-21.27	H
5130.22	-35.49	13.10	16.32	-38.71	-13.00	-25.71	H
6840.59	-33.15	12.33	21.13	-41.95	-13.00	-28.95	H
3420.07	-35.06	12.90	12.56	-34.72	-13.00	-21.72	V
5130.22	-35.08	13.10	16.32	-38.30	-13.00	-25.30	V
6840.59	-32.74	12.33	21.13	-41.54	-13.00	-28.54	V
NB-IoT Band 4 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3495.21	-33.49	12.90	12.56	-33.15	-13.00	-20.15	H
5242.71	-34.88	13.10	16.32	-38.10	-13.00	-25.10	H
6989.82	-32.20	12.33	21.13	-41.00	-13.00	-28.00	H
3495.21	-34.74	12.90	12.56	-34.40	-13.00	-21.40	V
5242.71	-33.91	13.10	16.32	-37.13	-13.00	-24.13	V
6989.82	-32.52	12.33	21.13	-41.32	-13.00	-28.32	V
NB-IoT Band 4 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3509.77	-34.46	12.90	12.56	-34.12	-13.00	-21.12	H
5765.03	-34.13	13.10	16.32	-37.35	-13.00	-24.35	H
7020.16	-33.37	12.33	21.13	-42.17	-13.00	-29.17	H
3509.77	-34.72	12.90	12.56	-34.38	-13.00	-21.38	V
5765.03	-35.13	13.10	16.32	-38.35	-13.00	-25.35	V
7020.16	-31.95	12.33	21.13	-40.75	-13.00	-27.75	V

NB-IoT Band 4 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3420.40	-34.41	12.90	12.56	-34.07	-13.00	-21.07	H
5130.05	-34.67	13.10	16.32	-37.89	-13.00	-24.89	H
6840.36	-32.78	12.33	21.13	-41.58	-13.00	-28.58	H
3420.40	-35.23	12.90	12.56	-34.89	-13.00	-21.89	V
5130.05	-35.20	13.10	16.32	-38.42	-13.00	-25.42	V
6840.36	-33.10	12.33	21.13	-41.90	-13.00	-28.90	V
NB-IoT Band 4 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3494.96	-34.10	12.90	12.56	-33.76	-13.00	-20.76	H
5242.52	-34.80	13.10	16.32	-38.02	-13.00	-25.02	H
6989.90	-32.20	12.33	21.13	-41.00	-13.00	-28.00	H
3494.96	-35.20	12.90	12.56	-34.86	-13.00	-21.86	V
5242.52	-34.71	13.10	16.32	-37.93	-13.00	-24.93	V
6989.90	-32.57	12.33	21.13	-41.37	-13.00	-28.37	V
NB-IoT Band 4 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3510.15	-34.22	12.90	12.56	-33.88	-13.00	-20.88	H
5765.21	-34.05	13.10	16.32	-37.27	-13.00	-24.27	H
7020.04	-32.88	12.33	21.13	-41.68	-13.00	-28.68	H
3510.15	-34.95	12.90	12.56	-34.61	-13.00	-21.61	V
5765.21	-35.23	13.10	16.32	-38.45	-13.00	-25.45	V
7020.04	-32.35	12.33	21.13	-41.15	-13.00	-28.15	V

NB-IoT Band 4 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3420.10	-34.43	12.90	12.56	-34.09	-13.00	-21.09	H
5130.48	-35.33	13.10	16.32	-38.55	-13.00	-25.55	H
6840.42	-33.64	12.33	21.13	-42.44	-13.00	-29.44	H
3420.10	-34.74	12.90	12.56	-34.40	-13.00	-21.40	V
5130.48	-35.07	13.10	16.32	-38.29	-13.00	-25.29	V
6840.42	-32.45	12.33	21.13	-41.25	-13.00	-28.25	V
NB-IoT Band 4 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3494.85	-34.24	12.90	12.56	-33.90	-13.00	-20.90	H
5242.46	-34.76	13.10	16.32	-37.98	-13.00	-24.98	H
6990.21	-32.69	12.33	21.13	-41.49	-13.00	-28.49	H
3494.85	-34.79	12.90	12.56	-34.45	-13.00	-21.45	V
5242.46	-35.05	13.10	16.32	-38.27	-13.00	-25.27	V
6990.21	-31.74	12.33	21.13	-40.54	-13.00	-27.54	V
NB-IoT Band 4 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
3509.92	-33.60	12.90	12.56	-33.26	-13.00	-20.26	H
5765.13	-34.46	13.10	16.32	-37.68	-13.00	-24.68	H
7019.82	-32.65	12.33	21.13	-41.45	-13.00	-28.45	H
3509.92	-34.89	12.90	12.56	-34.55	-13.00	-21.55	V
5765.13	-34.01	13.10	16.32	-37.23	-13.00	-24.23	V
7019.82	-32.12	12.33	21.13	-40.92	-13.00	-27.92	V

NB-IoT Band 5 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1648.41	-34.49	9.56	9.72	-34.65	-13.00	-21.65	H
2471.82	-35.19	10.50	10.86	-35.55	-13.00	-22.55	H
3296.55	-33.37	12.78	11.57	-32.16	-13.00	-19.16	H
1648.41	-34.58	9.56	9.72	-34.74	-13.00	-21.74	V
2471.82	-34.63	10.50	10.86	-34.99	-13.00	-21.99	V
3296.55	-33.02	12.78	11.57	-31.81	-13.00	-18.81	V
NB-IoT Band 5 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1672.89	-34.30	9.56	9.72	-34.46	-13.00	-21.46	H
2509.23	-34.79	10.50	10.86	-35.15	-13.00	-22.15	H
3346.14	-32.81	12.78	11.57	-31.60	-13.00	-18.60	H
1672.89	-35.13	9.56	9.72	-35.29	-13.00	-22.29	V
2509.23	-34.92	10.50	10.86	-35.28	-13.00	-22.28	V
3346.14	-32.46	12.78	11.57	-31.25	-13.00	-18.25	V
NB-IoT Band 5 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1697.81	-34.46	9.56	9.72	-34.62	-13.00	-21.62	H
2546.68	-35.32	10.50	10.86	-35.68	-13.00	-22.68	H
3395.40	-33.24	12.78	11.57	-32.03	-13.00	-19.03	H
1697.81	-34.60	9.56	9.72	-34.76	-13.00	-21.76	V
2546.68	-34.73	10.50	10.86	-35.09	-13.00	-22.09	V
3395.40	-31.80	12.78	11.57	-30.59	-13.00	-17.59	V

NB-IoT Band 5 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1648.06	-34.58	9.56	9.72	-34.74	-13.00	-21.74	H
2471.86	-34.52	10.50	10.86	-34.88	-13.00	-21.88	H
3296.27	-32.45	12.78	11.57	-31.24	-13.00	-18.24	H
1648.06	-34.79	9.56	9.72	-34.95	-13.00	-21.95	V
2471.86	-34.91	10.50	10.86	-35.27	-13.00	-22.27	V
3296.27	-32.60	12.78	11.57	-31.39	-13.00	-18.39	V
NB-IoT Band 5 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1673.01	-33.61	9.56	9.72	-33.77	-13.00	-20.77	H
2509.66	-34.20	10.50	10.86	-34.56	-13.00	-21.56	H
3345.77	-32.36	12.78	11.57	-31.15	-13.00	-18.15	H
1673.01	-35.98	9.56	9.72	-36.14	-13.00	-23.14	V
2509.66	-33.77	10.50	10.86	-34.13	-13.00	-21.13	V
3345.77	-33.01	12.78	11.57	-31.80	-13.00	-18.80	V
NB-IoT Band 5 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1697.51	-33.78	9.56	9.72	-33.94	-13.00	-20.94	H
2546.53	-34.41	10.50	10.86	-34.77	-13.00	-21.77	H
3395.70	-32.82	12.78	11.57	-31.61	-13.00	-18.61	H
1697.51	-35.12	9.56	9.72	-35.28	-13.00	-22.28	V
2546.53	-33.99	10.50	10.86	-34.35	-13.00	-21.35	V
3395.70	-32.91	12.78	11.57	-31.70	-13.00	-18.70	V

NB-IoT Band 5 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1648.08	-33.91	9.56	9.72	-34.07	-13.00	-21.07	H
2472.05	-35.06	10.50	10.86	-35.42	-13.00	-22.42	H
3296.58	-33.43	12.78	11.57	-32.22	-13.00	-19.22	H
1648.08	-34.55	9.56	9.72	-34.71	-13.00	-21.71	V
2472.05	-35.05	10.50	10.86	-35.41	-13.00	-22.41	V
3296.58	-32.95	12.78	11.57	-31.74	-13.00	-18.74	V
NB-IoT Band 5 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1673.21	-33.92	12.90	12.56	-33.58	-13.00	-20.58	H
2509.47	-34.21	13.10	16.32	-37.43	-13.00	-24.43	H
3345.97	-33.43	12.33	21.13	-42.23	-13.00	-29.23	H
1673.21	-35.96	12.90	12.56	-35.62	-13.00	-22.62	V
2509.47	-34.52	13.10	16.32	-37.74	-13.00	-24.74	V
3345.97	-33.10	12.33	21.13	-41.90	-13.00	-28.90	V
NB-IoT Band 5 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1697.82	-34.05	9.56	9.72	-34.21	-13.00	-21.21	H
2546.80	-34.48	10.50	10.86	-34.84	-13.00	-21.84	H
3395.70	-33.37	12.78	11.57	-32.16	-13.00	-19.16	H
1697.82	-34.52	9.56	9.72	-34.68	-13.00	-21.68	V
2546.80	-35.05	10.50	10.86	-35.41	-13.00	-22.41	V
3395.70	-32.78	12.78	11.57	-31.57	-13.00	-18.57	V

NB-IoT Band 5 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1648.18	-33.88	9.56	9.72	-34.04	-13.00	-21.04	H
2471.99	-34.61	10.50	10.86	-34.97	-13.00	-21.97	H
3296.61	-32.74	12.78	11.57	-31.53	-13.00	-18.53	H
1648.18	-34.57	9.56	9.72	-34.73	-13.00	-21.73	V
2471.99	-35.02	10.50	10.86	-35.38	-13.00	-22.38	V
3296.61	-32.11	12.78	11.57	-30.90	-13.00	-17.90	V
NB-IoT Band 5 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1673.05	-34.34	9.56	9.72	-34.50	-13.00	-21.50	H
2509.26	-35.05	10.50	10.86	-35.41	-13.00	-22.41	H
3345.86	-33.14	12.78	11.57	-31.93	-13.00	-18.93	H
1673.05	-34.69	9.56	9.72	-34.85	-13.00	-21.85	V
2509.26	-34.95	10.50	10.86	-35.31	-13.00	-22.31	V
3345.86	-33.02	12.78	11.57	-31.81	-13.00	-18.81	V
NB-IoT Band 5 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1697.86	-34.48	9.56	9.72	-34.64	-13.00	-21.64	H
2546.71	-34.40	10.50	10.86	-34.76	-13.00	-21.76	H
3395.60	-32.68	12.78	11.57	-31.47	-13.00	-18.47	H
1697.86	-35.45	9.56	9.72	-35.61	-13.00	-22.61	V
2546.71	-33.88	10.50	10.86	-34.24	-13.00	-21.24	V
3395.60	-32.36	12.78	11.57	-31.15	-13.00	-18.15	V

NB-IoT Band 12 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1398.07	-34.29	8.17	9.34	-35.46	-13.00	-22.46	H
2097.04	-34.21	9.53	10.42	-35.10	-13.00	-22.10	H
2796.48	-32.25	11.27	11.12	-32.10	-13.00	-19.10	H
1398.07	-35.21	8.17	9.34	-36.38	-13.00	-23.38	V
2097.04	-34.37	9.53	10.42	-35.26	-13.00	-22.26	V
2796.48	-32.82	11.27	11.12	-32.67	-13.00	-19.67	V
NB-IoT Band 12 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1414.89	-34.47	8.17	9.34	-35.64	-13.00	-22.64	H
2122.28	-34.87	9.53	10.42	-35.76	-13.00	-22.76	H
2829.89	-33.62	11.27	11.12	-33.47	-13.00	-20.47	H
1414.89	-35.77	8.17	9.34	-36.94	-13.00	-23.94	V
2122.28	-35.19	9.53	10.42	-36.08	-13.00	-23.08	V
2829.89	-32.57	11.27	11.12	-32.42	-13.00	-19.42	V
NB-IoT Band 12 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1431.57	-34.70	8.17	9.34	-35.87	-13.00	-22.87	H
2147.89	-34.33	9.53	10.42	-35.22	-13.00	-22.22	H
2863.50	-32.75	11.27	11.12	-32.60	-13.00	-19.60	H
1431.57	-35.71	8.17	9.34	-36.88	-13.00	-23.88	V
2147.89	-34.68	9.53	10.42	-35.57	-13.00	-22.57	V
2863.50	-33.17	11.27	11.12	-33.02	-13.00	-20.02	V

NB-IoT Band 12 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1398.28	-34.38	8.17	9.34	-35.55	-13.00	-22.55	H
2097.02	-34.66	9.53	10.42	-35.55	-13.00	-22.55	H
2796.34	-32.52	11.27	11.12	-32.37	-13.00	-19.37	H
1398.28	-35.46	8.17	9.34	-36.63	-13.00	-23.63	V
2097.02	-34.87	9.53	10.42	-35.76	-13.00	-22.76	V
2796.34	-32.40	11.27	11.12	-32.25	-13.00	-19.25	V
NB-IoT Band 12 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1415.23	-34.76	8.17	9.34	-35.93	-13.00	-22.93	H
2122.32	-34.21	9.53	10.42	-35.10	-13.00	-22.10	H
2829.92	-33.15	11.27	11.12	-33.00	-13.00	-20.00	H
1415.23	-34.60	8.17	9.34	-35.77	-13.00	-22.77	V
2122.32	-33.90	9.53	10.42	-34.79	-13.00	-21.79	V
2829.92	-31.74	11.27	11.12	-31.59	-13.00	-18.59	V
NB-IoT Band 12 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1431.59	-33.59	8.17	9.34	-34.76	-13.00	-21.76	H
2147.46	-34.39	9.53	10.42	-35.28	-13.00	-22.28	H
2863.74	-32.32	11.27	11.12	-32.17	-13.00	-19.17	H
1431.59	-35.35	8.17	9.34	-36.52	-13.00	-23.52	V
2147.46	-34.21	9.53	10.42	-35.10	-13.00	-22.10	V
2863.74	-32.41	11.27	11.12	-32.26	-13.00	-19.26	V

NB-IoT Band 12 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1397.94	-34.20	8.17	9.34	-35.37	-13.00	-22.37	H
2097.07	-34.08	9.53	10.42	-34.97	-13.00	-21.97	H
2796.54	-32.79	11.27	11.12	-32.64	-13.00	-19.64	H
1397.94	-35.51	8.17	9.34	-36.68	-13.00	-23.68	V
2097.07	-34.30	9.53	10.42	-35.19	-13.00	-22.19	V
2796.54	-32.45	11.27	11.12	-32.30	-13.00	-19.30	V
NB-IoT Band 12 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1415.08	-34.53	8.17	9.34	-35.70	-13.00	-22.70	H
2122.44	-34.91	9.53	10.42	-35.80	-13.00	-22.80	H
2829.92	-32.59	11.27	11.12	-32.44	-13.00	-19.44	H
1415.08	-35.89	8.17	9.34	-37.06	-13.00	-24.06	V
2122.44	-34.62	9.53	10.42	-35.51	-13.00	-22.51	V
2829.92	-33.09	11.27	11.12	-32.94	-13.00	-19.94	V
NB-IoT Band 12 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1431.82	-33.60	8.17	9.34	-34.77	-13.00	-21.77	H
2147.71	-34.93	9.53	10.42	-35.82	-13.00	-22.82	H
2863.76	-32.33	11.27	11.12	-32.18	-13.00	-19.18	H
1431.82	-35.18	8.17	9.34	-36.35	-13.00	-23.35	V
2147.71	-34.07	9.53	10.42	-34.96	-13.00	-21.96	V
2863.76	-33.21	11.27	11.12	-33.06	-13.00	-20.06	V

NB-IoT Band 12 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1398.21	-33.54	8.17	9.34	-34.71	-13.00	-21.71	H
2097.03	-35.04	9.53	10.42	-35.93	-13.00	-22.93	H
2796.55	-32.47	11.27	11.12	-32.32	-13.00	-19.32	H
1398.21	-34.96	8.17	9.34	-36.13	-13.00	-23.13	V
2097.03	-34.96	9.53	10.42	-35.85	-13.00	-22.85	V
2796.55	-33.13	11.27	11.12	-32.98	-13.00	-19.98	V
NB-IoT Band 12 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1415.02	-33.53	8.17	9.34	-34.70	-13.00	-21.70	H
2122.49	-34.28	9.53	10.42	-35.17	-13.00	-22.17	H
2829.95	-32.93	11.27	11.12	-32.78	-13.00	-19.78	H
1415.02	-35.33	8.17	9.34	-36.50	-13.00	-23.50	V
2122.49	-34.47	9.53	10.42	-35.36	-13.00	-22.36	V
2829.95	-32.39	11.27	11.12	-32.24	-13.00	-19.24	V
NB-IoT Band 12 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1431.79	-34.72	8.17	9.34	-35.89	-13.00	-22.89	H
2147.48	-34.48	9.53	10.42	-35.37	-13.00	-22.37	H
2863.61	-33.07	11.27	11.12	-32.92	-13.00	-19.92	H
1431.79	-35.47	8.17	9.34	-36.64	-13.00	-23.64	V
2147.48	-34.38	9.53	10.42	-35.27	-13.00	-22.27	V
2863.61	-32.31	11.27	11.12	-32.16	-13.00	-19.16	V

NB-IoT Band 13 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1554.33	-48.11	9.56	9.72	-48.27	-13.00	-35.27	H
2331.40	-47.00	10.50	10.86	-47.36	-13.00	-34.36	H
3018.24	-46.25	12.78	11.57	-45.04	-13.00	-32.04	H
1554.33	-48.57	9.56	9.72	-48.73	-13.00	-35.73	V
2331.40	-46.13	10.50	10.86	-46.49	-13.00	-33.49	V
3018.24	-45.29	12.78	11.57	-44.08	-13.00	-31.08	V
NB-IoT Band 13 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1564.04	-48.86	9.56	9.72	-49.02	-40.00	-9.02	H
2345.78	-46.35	10.50	10.86	-46.71	-13.00	-33.71	H
3127.83	-46.63	12.78	11.57	-45.42	-13.00	-32.42	H
1564.04	-48.08	9.56	9.72	-48.24	-40.00	-8.24	V
2345.78	-46.82	10.50	10.86	-47.18	-13.00	-34.18	V
3127.83	-45.49	12.78	11.57	-44.28	-13.00	-31.28	V
NB-IoT Band 13 / QPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1573.59	-48.19	9.56	9.72	-48.35	-40.00	-8.35	H
2360.68	-47.00	10.50	10.86	-47.36	-13.00	-34.36	H
3147.81	-45.48	12.78	11.57	-44.27	-13.00	-31.27	H
1573.59	-48.41	9.56	9.72	-48.57	-40.00	-8.57	V
2360.68	-47.17	10.50	10.86	-47.53	-13.00	-34.53	V
3147.81	-46.18	12.78	11.57	-44.97	-13.00	-31.97	V

NB-IoT Band 13 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1554.06	-48.78	9.56	9.72	-48.94	-13.00	-35.94	H
2331.51	-47.27	10.50	10.86	-47.63	-13.00	-34.63	H
3018.29	-45.36	12.78	11.57	-44.15	-13.00	-31.15	H
1554.06	-47.93	9.56	9.72	-48.09	-13.00	-35.09	V
2331.51	-46.36	10.50	10.86	-46.72	-13.00	-33.72	V
3018.29	-45.54	12.78	11.57	-44.33	-13.00	-31.33	V
NB-IoT Band 13 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1564.31	-48.50	9.56	9.72	-48.66	-40.00	-8.66	H
2345.78	-47.39	10.50	10.86	-47.75	-13.00	-34.75	H
3127.85	-45.92	12.78	11.57	-44.71	-13.00	-31.71	H
1564.31	-48.66	9.56	9.72	-48.82	-40.00	-8.82	V
2345.78	-47.41	10.50	10.86	-47.77	-13.00	-34.77	V
3127.85	-46.15	12.78	11.57	-44.94	-13.00	-31.94	V
NB-IoT Band 13 / BPSK / 3.75KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1573.63	-48.50	9.56	9.72	-48.66	-40.00	-8.66	H
2360.64	-47.09	10.50	10.86	-47.45	-13.00	-34.45	H
3147.49	-46.32	12.78	11.57	-45.11	-13.00	-32.11	H
1573.63	-48.60	9.56	9.72	-48.76	-40.00	-8.76	V
2360.64	-46.33	10.50	10.86	-46.69	-13.00	-33.69	V
3147.49	-46.14	12.78	11.57	-44.93	-13.00	-31.93	V

NB-IoT Band 13 / QPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1554.08	-48.68	9.56	9.72	-48.84	-13.00	-35.84	H
2331.48	-47.45	10.50	10.86	-47.81	-13.00	-34.81	H
3018.56	-45.38	12.78	11.57	-44.17	-13.00	-31.17	H
1554.08	-48.64	9.56	9.72	-48.80	-13.00	-35.80	V
2331.48	-47.06	10.50	10.86	-47.42	-13.00	-34.42	V
3018.56	-45.41	12.78	11.57	-44.20	-13.00	-31.20	V
NB-IoT Band 13 / QPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1564.21	-47.79	9.56	9.72	-47.95	-40.00	-7.95	H
2345.63	-46.84	10.50	10.86	-47.20	-13.00	-34.20	H
3128.21	-45.34	12.78	11.57	-44.13	-13.00	-31.13	H
1564.21	-47.49	9.56	9.72	-47.65	-40.00	-7.65	V
2345.63	-47.16	10.50	10.86	-47.52	-13.00	-34.52	V
3128.21	-46.12	12.78	11.57	-44.91	-13.00	-31.91	V
NB-IoT Band 13 / QPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1573.99	-47.90	9.56	9.72	-48.06	-40.00	-8.06	H
2360.67	-47.43	10.50	10.86	-47.79	-13.00	-34.79	H
3147.71	-46.35	12.78	11.57	-45.14	-13.00	-32.14	H
1573.99	-48.37	9.56	9.72	-48.53	-40.00	-8.53	V
2360.67	-46.24	10.50	10.86	-46.60	-13.00	-33.60	V
3147.71	-46.09	12.78	11.57	-44.88	-13.00	-31.88	V

NB-IoT Band 13 / BPSK / 15KHz /1@0/ The Worst Test Results for Lowest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1554.40	-48.80	9.56	9.72	-48.96	-13.00	-35.96	H
2331.37	-46.37	10.50	10.86	-46.73	-13.00	-33.73	H
3018.53	-45.45	12.78	11.57	-44.24	-13.00	-31.24	H
1554.40	-48.05	9.56	9.72	-48.21	-13.00	-35.21	V
2331.37	-46.70	10.50	10.86	-47.06	-13.00	-34.06	V
3018.53	-45.91	12.78	11.57	-44.70	-13.00	-31.70	V
NB-IoT Band 13 / BPSK / 15KHz /1@0/ The Worst Test Results for Middle							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1564.03	-47.61	9.56	9.72	-47.77	-40.00	-7.77	H
2345.64	-46.52	10.50	10.86	-46.88	-13.00	-33.88	H
3128.04	-45.87	12.78	11.57	-44.66	-13.00	-31.66	H
1564.03	-48.08	9.56	9.72	-48.24	-40.00	-8.24	V
2345.64	-45.99	10.50	10.86	-46.35	-13.00	-33.35	V
3128.04	-45.69	12.78	11.57	-44.48	-13.00	-31.48	V
NB-IoT Band 13 / BPSK / 15KHz /1@0/ The Worst Test Results for Highest							
Frequency(MHz)	S G.Lev (dBm)	Ant(dBi)	Loss	PMea (dBm)	Limit （dBm）	Margin (dBm)	Polarity
1573.71	-48.93	9.56	9.72	-49.09	-40.00	-9.09	H
2360.87	-46.38	10.50	10.86	-46.74	-13.00	-33.74	H
3147.42	-45.43	12.78	11.57	-44.22	-13.00	-31.22	H
1573.71	-47.75	9.56	9.72	-47.91	-40.00	-7.91	V
2360.87	-47.14	10.50	10.86	-47.50	-13.00	-34.50	V
3147.42	-45.52	12.78	11.57	-44.31	-13.00	-31.31	V

APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※